

VALUE ENGINEERING CHANGE PROPOSAL
MISSOURI DEPARTMENT OF TRANSPORTATION

Date 10/14/2008

Contract ID : 080919-401

Job No. J4I1650

County Jackson

Original Bid Cost **\$14,338,653.91**

Contractor Emery Sapp & Sons, Inc.

By **Jesse Hinton**

Designed By **Bartlett & West**

Phone 573-445-8331

VECP# 08-100 (to be completed by C.O.)

VECP ☒ or VECP/PDU ☐

1. **Description of existing requirements and proposed change(s). Advantages/Disadvantages**
Retaining Wall A7505 is to be constructed as a cast-in-place concrete retaining wall. Emery Sapp & Sons proposes to construct the retaining wall as an MSE wall in order to decrease construction costs and improve the aesthetics of the project.

2. Estimate of reduction in construction costs. \$37,314.00

3. Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.

None.

4. Anticipated date for submittal of detailed change(s) of items required by Section 104.6 of the Specifications.

(date)

5. Deadline for issuing a change order to obtain maximum cost reduction, noting the effect of contract completion time or delivery schedule.

01/01/2009

(date)

(effect)

6. Dates of any previous or concurrent submission of the same proposal.

(date and/or dates)

Additional Comments:

**** Portion Below This Line To Be Filled Out by MoDOT ****

Comments:

I do not recommend approval of this VE Proposal based on conversations and recommendations made by the Design Team and the City of Lee's Summit. See attached feedback from Project Manager, Allan Ludiker, P.E. The consultant designer is also providing additional feedback for MoDOT's records and consideration and it will be available if requested. The Design Team did consider this option during the retaining wall design phase; however, the adjacent property owner and utilities made it unfeasible.

Shelie Daniel

Submitted By Resident Engineer

10-24-08

Date

Comments:

*WE CONCUR WITH THE FINDINGS OF THE
RESIDENT ENGINEER.*



Approval
Recommended

Elizabeth A. Nyst

FDN

10-27-08



Rejection
Recommended

District Engineer

Date

Comments:



Approval
Recommended



Rejection
Recommended

Federal Highway Administration

Required for FHWA Full Oversight Projects

Date

Comments:

*CONCEPTUAL APPROVAL IS DENIED FOR REASONS STATED
IN DISTRICT'S SUPPORTING DOCUMENTATION. PROPOSAL WAS
CONSIDERED BY PROJECT TEAM DURING DESIGN.*



Approval

David D. O'Brien

12-2-00



Rejection

State Construction and Materials Engineer

Date

Distribution: Resident Engineer, Project Manager, District Construction & Materials Engineer, State Construction & Materials Engineer,
Value Engineering Administrator - MoDOT, P. O. Box 270, Jefferson City, MO 65102

Allan J Ludiker/D4/MODOT
10/24/2008 07:47 AM

To Shelle A Daniel/D4/MODOT@MODOT
cc Perry J Allen/D4/MODOT@MODOT, Robert W
Ruffini/D4/MODOT@MODOT
bcc

Subject Re: Value Engineering Proposals, Strother Road, J411650,
I-470, Jackson County

Shelle,

I agree with the recommendations. I will follow-up with BWE to obtain the bridge and retaining wall selection reports, along with the recommendation, and get those to you ASAP. The reports that were put together during design process summarizing the decisions for the bridge and retaining wall type, that I think were referenced in the Wednesday's meeting, hit on what is being recommended through the VE. I believe they show why the VE proposals (2 and 3) should not be implemented.

Allan J. Ludiker, P.E.
Transportation Project Manager
Missouri Department of Transportation
816.622.0464
Allan.Ludiker@modot.mo.gov

Shelle A Daniel/D4/MODOT



Shelle A Daniel/D4/MODOT
10/23/2008 05:10 PM

To Allan J Ludiker/D4/MODOT@MODOT
cc Robert W Ruffini/D4/MODOT@MODOT, Perry J
Allen/D4/MODOT@MODOT
Subject Value Engineering Proposals, Strother Road, J411650, I-470,
Jackson County

Allan,

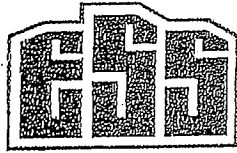
I never received the designer's information to support/reject the three VE Proposals submitted by ESS.

Based on my conversations with Herb Bailey, Brad Brunk and the rest of the design team yesterday, after the precon, I am going to recommend the following:

Approval of VE Proposal #1 as a 25/75 split, conceptual approval only.
Not recommend VE Proposal #2 based on Lee's Summit, Ron Temme and the Designers comments (I have not seen any of these and am going strictly on yesterday's meeting).
Not recommend VE Proposal #3 based on the utilities and ROW issues that were encountered during design.

I am sure that Perry Allen, FHWA and Dave Alhvers will want the supporting documentation from the design team.

Shelle Daniel, P.E.
Resident Engineer
5101 NW Gateway
Riverside, MO 64150
(816) 741-7030
(816) 215-7275 (cell)



EMERY SAPP & SONS, INC.

140 Walnut St.
Kansas City, MO 64106
O: 816.221.3500
F: 816.421.9333

2602 N. Stadium Blvd.
Columbia, MO 65202
O: 573.445.8331
F: 573.445.0266

5350 E. State Hwy. AA
Springfield, MO 65803
O: 417.833.9915
F: 417.833.9981

October 20, 2008

Mrs. Shelie Daniel, R.E.
Missouri Department of Transportation
5101 NW Gateway
Riverside, MO 64150

RE: Value Engineering Change Proposal #3
Rte. I-470, Jackson County,
Job No. J411650

RECEIVED
OCT 20 2008
MODOT D4
RIVERSIDE

Mrs. Daniel:

Attached to this letter is Form C-104, Construction Value Engineering Change Proposal. This is a Value Engineering Change Proposal that involves the construction of Retaining Wall A7505. Emery Sapp & Sons would like to submit this VE Proposal for consideration only if the VE concept involving single-span bridges is accepted.

The subject of this Value Engineering proposal is to construct an MSE Wall in lieu of the cast-in-place concrete retaining wall. The primary advantages of this proposal would be a reduction in construction costs and improvement in aesthetics of the project.

Total Savings from acceptance of VE Proposal: \$37,314.00

We believe that this proposal includes numerous advantages – including cost savings – that will benefit MoDOT and the traveling public. If you have any questions, please contact me at (573) 445-8331. Thank you for your consideration of this proposal.

Sincerely,

Emery Sapp & Sons, Inc.

Jesse Hinton, EI
Project Manager



Shelie A Daniel/D4/MODOT
10/27/2008 07:18 AM

To Perry J Allen/D4/MODOT@MODOT, Dennis G
Bryant/SC/MODOT@MODOT, kevin.irving@fhwa.dot.gov
cc
bcc
Subject Fw: Strother Rd - Responses to VE Proposal #3 - Retaining
Wall

Here is some additional information from the Design Team.

Shelie Daniel, P.E.
Resident Engineer
5101 NW Gateway
Riverside, MO 64150
(816) 741-7030
(816) 215-7275 (cell)
(816) 741-0200 (fax)

----- Forwarded by Shelie A Daniel/D4/MODOT on 10/27/2008 07:18 AM -----



"Herb Bailey"
<herb.bailey@bartwest.com>
10/24/2008 03:36 PM

To <Shelie.Daniel@modot.mo.gov>,
<Robert.Ruffini@modot.mo.gov>
cc <Allan.Ludiker@modot.mo.gov>,
<Robert.Netterville@lees-summit.mo.us>, "Dena Mezger"
<Dena.Mezger@lees-summit.mo.us>, "John Hobelman"
<john.hobelman@BARTWEST.COM>, "Bruce Hattig"
<bruce.hattig@BARTWEST.COM>,
<Bradley.Brunck@modot.mo.gov>, "Joe Caldwell"
<joe.caldwell@BARTWEST.COM>
Subject Strother Rd - Responses to VE Proposal #3 - Retaining Wall

Shelie,

Attached are accumulated responses to your questions that were submitted to Allan Ludiker on October 20, 2008, with regard to Emery Sapp's Value Engineering Proposal No. 3 (Retaining Wall). These comments were assembled by John Hobelman, lead designer of the roadway portion of the project.

Some additional comments on VE #3:

With regard to the retaining wall, we seriously considered the MSE alternate to save money. Please note the cost study attached (Strother Road - Pro Con). For this wall, there is not a great savings to be had.

The difference maker was the fact that the land behind the retaining wall is a valuable commercial lot with a utility easement around the outside perimeter adjacent to city and state right of way. The underground straps are long enough that they cannot be contained within the right of way. The permanent easement for the straps and the utility easement guaranteed a potential conflict in underground space if and when

some kind of a underground utility used the easement. Since the area is not fully developed, we could not take a chance on providing a future conflict.

Another difference maker was the opportunity to avoid having to obtain a permanent easement from the owner of the commercial lot for the underground straps that support the wall units. Parking spaces would be lost at a cost to the City. The City would have also had to pay for the damage to the lot that would be unusable for a building. A building could occupy space that had to be reserved for strap maintenance. The City would have to pay for the damage to the resale value because of the permanent easement that rendered the land covering the straps unusable except for grass and plantings.

When considering the cost of the permanent easement, the avoidance of the potential conflict was determined by the core team to be the best alternative.

Herb Bailey, P.E.

Bartlett & West, Inc.

Project Manager

TEL 785-749-9452

FAX 785-749-5961

CELL 785-691-9802

email: herb.bailey@bartwest.com

This e-mail and any files transmitted with it are confidential and intended solely for the use of the addressee. If you receive this transmission in error, please notify the sender and delete this e-mail. No employee or agent is authorized to conclude any binding agreement on behalf of Bartlett & West, Inc.



with another party by e-mail. Comments to Value Engineering Change #3 (2).doc



LOT_Strother Rd-Ret Wall_Pro-Con (10-18-07).pdf Strother Road -Pro Con (10-17-07)cc_jh.pdf

File Copy

BARTLETT & WEST
ENGINEERS
SERVICE. THE BARTLETT & WEST WAY.

October 18, 2007

Allan J. Ludiker, PE
Missouri Department of Transportation
600 NE Colbern Road
Lee's Summit, MO 64086

Re: Pro/Con on Type of Retaining Wall (CIP/MSE)
Route I-470, Strother Road Interchange
Job No. J4I1650

Mr. Ludiker:

On behalf of the City of Lee's Summit, we are submitting an exhibit and engineer's estimate outlining the pros and cons in the decision making process the design team used to conclude that a Cast-in-Place (CIP) retaining wall would serve better than a Mechanically Stabilized Earth (MSE) retaining wall.

The cost of the CIP wall is slightly more than the MSE wall when summing the bridge and road items required for construction (see attachment for breakdown of costs for each). However, the MSE wall is supported by steel straps laid horizontally behind the wall panels which are best preserved during the maintenance period with a permanent easement to deed restrict construction in the vicinity of the straps. The CIP wall gains its support from its bulk and is not required to have horizontal support beyond the right of way line.

Another issue that favors the CIP wall also involves the MSE strap configuration. The land directly behind the wall is zoned commercial and will have a permanent utility easement paralleling the right of way line. Future underground lines or pole mounted overhead lines will certainly occupy that easement in the future as development happens. The straps are in that same area and would be in conflict with the utility lines.

Therefore, the CIP design was considered the best alternative by the design team.

Sincerely,

Herbert R. Bailey
Herbert R. Bailey, PE
Project Manager

Cc: Robert Netterville, PE

628 VERMONT STREET ■ LAWRENCE KS 66044-2252
785.749.9452 ■ FAX 785.749.5961 ■ 888.200.6464

WWW.BARTWEST.COM

Comments to Value Engineering Change #2
Rte. I-470, Jackson County
Job No. J4I1650

Mrs. Shelie Daniel, R.E.
Missouri Department of Transportation
5101 NW Gateway
Riverside MO 64150

Type of Retaining wall A7505.

Why were cast-in-place walls used instead of MSE Wall? The MSE wall option was looked at and discussed at length. The cast-in-place walls were chosen because there will be or is a utility easement behind the wall. The MSE wall would require more space behind the wall. The developer wanted to maximize the usable space behind the wall. Also the developer anticipated building a multi story building that could have been close to the adjoining property line.

Are there any reason why we could not use MSE Walls on the project regardless of the approval of VE Proposal No. 3? R/W is not available to allow for the additional space needed for the reinforcing strap and utilities are planning on using that space.

Comments from Ronald C Temme

1) I recall that there was R/W restrictions for construction of the MSE wall. It takes more room behind the wall to build an MSE wall structure than a CIP wall due to distance the soil reinforcement extends behind the wall.

Strother Road Interchange Project
MoDOT Job No. J4I1650
Retaining Wall Alternates

CAST-IN-PLACE RETAINING WALL

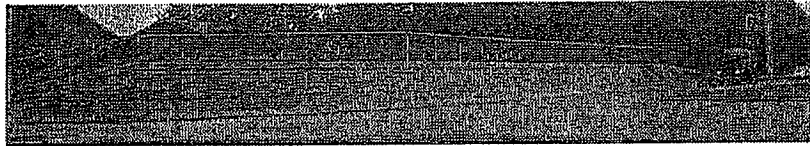
Advantages:

- Reduction in the rock cut required.
- Reduction in right of way, construction easements and permanent easements.
- Ashlar stone form liner can be used.
- Minimizes interference with utilities. There will be an active utility corridor behind wall.

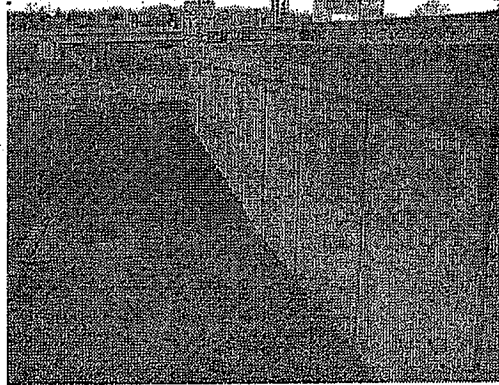
Disadvantages

- Total construction cost is higher.

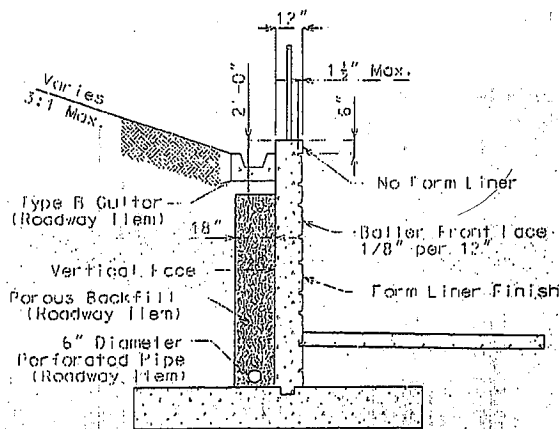
Total Construction Cost: \$244,652 (\$228,512 in Bridge Items and \$16,140 in Roadway Items)



Example Wall in District 4



Example Wall in District 5



Typical Section

MECHANICALLY STABILIZED EARTH (MSE) WALLS

Advantages:

- Ashlar stone form liner can be used.
- Total construction cost is lower.

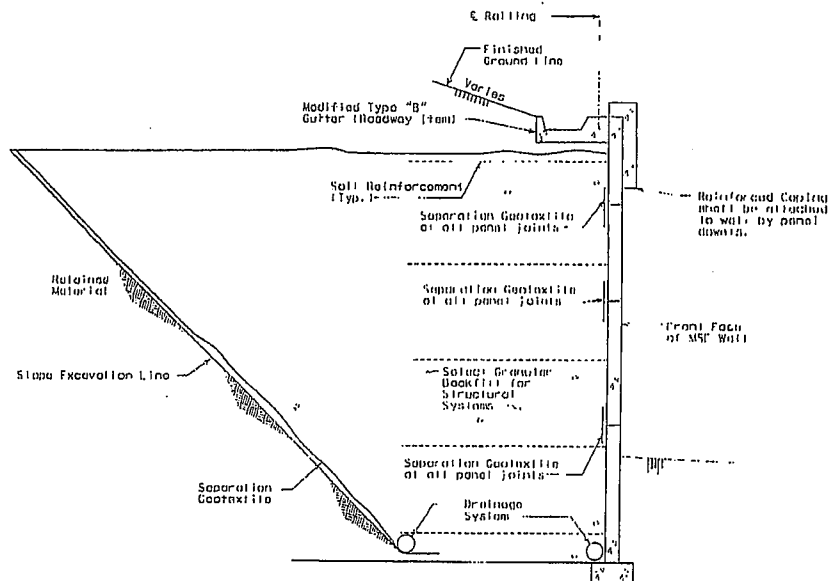
Disadvantages

- Increases the rock cut required.
- Increases the required amount of right of way, construction easements and permanent easements.
- Increases the likelihood interference with utilities. There will be an active utility corridor behind wall.

Total Construction Cost: \$233,706 (\$146,036 in Bridge Items and \$87,670 in Roadway Items)



Example Wall in District 4



Typical Section

Engineer's Estimate



SERVE THE BARTLETT & WEST WAY

1736 SOUTHRIDGE DRIVE SUITE 100 JEFFERSON CITY MO 65109
 878.694.3181 FAX 878.694.7904 M 880.869.8021
 WWW.BARTWEST.COM

Date: October 10, 2007

Project No.: 14030.003

Project: Construction Estimate
 A7505, I-470, Jackson Co., Job No. J4I1650

CIP Retaining Wall - Strother Road

Item No.	Description	Quantity	Unit	Engineer's Estimate	
				Unit Price	Extension
	Bridge Items				
	Class 1 Excavation	60	CY	45.00	2,700.00
	Class 1 Excavation in Rock	428	CY	130.00	55,640.00
	Class B Concrete (Retaining Walls)	160	CY	510.00	81,600.00
	Reinforcing Steel (Epoxy Coated)	21,520	LB	1.35	29,052.00
	Pedestrian Railing (42 inch)	237	LF	200.00	47,400.00
	Form Liner (Ashlar Stone Finish)	202	SY	60.00	12,120.00
	Backfill (Road Item)	264	CY	10.00	2,640.00
	Structural Underdrain (Road Item)	300	LF	45.00	13,500.00
	Retaining Wall Total (Oct. 2007 w/o Inflation Factors)				\$244,652.00

Engineer's Estimate



SERVICE. THE BARTLETT & WEST WAY.

1719 SOUTHBRIDGE DRIVE, SUITE 100 • JEFFERSON CITY MO 65109
873.634.3101 • FAX 873.634.7004 • 800.669.0031
WWW.BARTWEST.COM

Date: September 18, 2007

Project No.: 14030.003

Project: Construction Estimate
A7505, I 470, Jackson Co., Job No. J411650

MSE Retaining Wall - Strother Road

Item No.	Description	Quantity	Unit	Engineer's Estimate	
				Unit Price	Extension
	Bridge Items				
	Class 1 Excavation (Roadway Item)	160	CY	45.00	7,200.00
	Class 1 Excavation in Rock (Roadway Item)	619	CY	130.00	80,470.00
	MSE Wall Systems	2,285	SF	43.00	98,255.00
	Pedestrian Railing (42 inch)	237	LF	200.00	47,400.00
	Form Liner (Ashlar Stone Finish)	254	SY	1.50	381.00
	Retaining Wall Total (Sept. 2007 w/o Inflation Factors)				\$233,706.00

VALUE ENGINEERING CHECK SHEET

TYPE OF WORK

(Check one that applies)

- ☐ Bridge/Structure/Footings
- ☐ Drainage Structures (RCP, RCB, CMP's, ect.)
- ☐ TCP/MOT
- ☐ Paving (PCCP, ect.)
- ☒ Grading/MSE Walls
- ☐ Signal/Lighting/ITS
- ☐ Misc. _____

SUMMARY OF PROPOSAL

(If needed, condense summary to a couple of lines)

_____ Build MSE wall in lieu of cast-in-place retaining wall.

SCANNING OF DOCUMENT

If the proposal is large, please mark or make note, which pages need to be scanned into the database. If there are special instructions, make note of them here.

_____ Scan proposal only.
